



The relationship between financial reporting quality and investment efficiency in companies listed on Egyptian stock exchange: An Empirical study

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Abstract

This study aimed to measure the impact of the quality of financial reports on investment efficiency. Depending on a sample of (96) companies listed on the Egyptian Stock Exchange for the period (2013-2018) and the two-way fixed effects method, the study concluded that high-quality financial reports could reduce moral risks and negative choices between managers and investors. As a result, high-quality financial reporting can reduce underinvestment or overinvestment. Finally, the study found a medium practical indication in the Egyptian accounting environment of the quality of financial reports on investment efficiency (underinvestment and overinvestment).

Key words: Financial reporting quality, investment efficiency, underinvestment, overinvestment

1.Introudction

Considering the evolutions that have occurred in the world today, especially in developing countries that are faced with numerous threats, these countries to solve their economic problems require strategies for better use of their natural resources and wealth. This is achieved through an optimal use of economic resources to make decisions for increasing investment efficiency because of resource constraints, therefore, investment development is considered one of the most important strategies that countries must rely on to achieve the optimal use of those resources (Mehran, Salteh ,2014)

Investment efficiency is a function of risk, return and total cost of investment management, subject to the constraints within which investors must operate. These constraints include financial and non-financial elements such as an investor's time available to manage the investment arrangements, accountability as a fiduciary, or legislative requirements. Investment efficiency should therefore be regarded as a combination of financial and non-financial efficiency (URWIN, 2000)

Investment efficiency is defined as accepting only investment in projects with positive net present value (NPV), assuming no agency problems (such as adverse selection and moral hazard). In contrast inefficient (underinvestment) includes passing up investment opportunities that would have a positive NPV, and inefficient (overinvestment) includes undertaking projects with negative NPV. firms invest until the marginal benefit of capital investment equals the marginal cost (Biddle et al., 2009).

So, managers must increase investment in projects that have high growth opportunities, and avoid investment in projects that have low /negative growth opportunities. However, firms' investment decisions may

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not always be sensitive to change in growth opportunities. That means firms may depart from this optimal level and suffer from under-invest (lower investment than expected) or over -invest (greater investment than expected). For example, prior research identifies two primary imperfections – adverse selection¹ and moral hazard² caused by the existence of information asymmetry between stakeholders., which can affect the efficiency of capital investment (Verdi, 2006).

Some previous studies in this area, such as Hubbard, (1998) have shown that there exist at least two determinants of investment efficiency:

First, a firm needs to raise capital in order to finance its investment opportunities. These firms face financing constraints that limit managers' ability to finance potential projects, these firms will pass up positive NPV projects due to large costs of raising capital needed to finance these investment opportunities, resulting in underinvestment.

Second, even if the firm decides to raise capital, there is no guarantee that the correct investments are implemented. For instance, managers could choose to invest inefficiently by making bad project selections, resulting in overinvestment.

Information asymmetry can affect the cost of raising funds and project selection and therefore affect the efficiency of investment. To overcome the problem of information asymmetry firms must provide useful information for decision-making and have an increasing financial reporting.

In this regard, can be driven the concept of financial reporting quality and how it affects the investment efficiency.

Financial reporting quality is defined as the precision with which financial. reporting conveys information about the firm's operations, in

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particular its expected cash flows that inform equity investors (Dechow and Dichev, 2002).

The primary objective of financial reporting is to provide high-quality information concerning economic entities, primarily financial in nature, useful for economic decision making. Providing high quality financial reporting information is important because it will positively influence capital providers and other stakeholders in making investment, credit, and similar resource allocation decisions enhancing overall market efficiency (International Accounting Standards Board, 2008).

So International Financial Reporting Standards (IFRS, which are related to the International financial development of set universally accepted standers reporting high quality. So financial reporting quality can affect investment efficiency through:

- Good information assists management in increasing forecast accuracy of growth rates and the size of demand and evaluation of available investment opportunities and thus the efficient allocation of economic resources of the company thereby increasing the efficient of capital expenditures decisions which is reflected positively on available cash flows and the value of the company (Bushman and Smith, 2011).
- Reducing the information asymmetry among management and investors in the stock market and thus reduce the agency problems such as the adverse selection and thus reduce the cost of external financing, thereby increasing the efficiency of investment decision. (Jensen and Meckling ,1976)
- Accounting information is used by the owners as a tool for assessing and monitoring the performance of the management and therefore the higher the quality of accounting information the more effective control on the

management making the management more eager to efficient resource allocation (Bushman and Smith, 2011).

Hence the problem of the study Is investigating the relationship between the quality of financial reports and investment efficiency

Thus, the main research problem will be addressed in the form of the following question:

What is the relationship between financial reporting quality and investment efficiency for the companies listed in Egyptian stock exchange?

2. Research Objective

The research aims to study the relationship between financial reporting quality and investment efficiency for companies listed on the Egyptian Stock Exchange.

3. Research Importance and contribution

The research improves the ability of managers to make better investment decisions by improving financial reporting quality to reduce the information asymmetry between managers and investors and thus lower shareholders' cost of monitoring managers and improving project selection and thus improve investment efficiency. The research provides evidence that financial reporting quality plays an important role in investment efficiency in emerging markets (Included Egyptian stock market). Specifically, financial reporting quality plays a more important role in overinvestment.

4. Literature review

There is an extensive empirical literature testing the relationship between financial reporting quality and investment efficiency;

Biddle & Hilary (2006) examines how reporting quality relates to firm

level capital investment efficiency. first hypothesis is that higher quality accounting enhances investment efficiency by reducing information asymmetry between managers and outside suppliers of capital. second hypothesis is that this effect should be stronger in economies where financing is largely provided through arm's length transactions compared with countries where creditors supply more capital. results are consistent with these hypotheses both across and within countries.

Verdi (2006) studies the relation between financial reporting quality and investment efficiency on a sample of 38,062 firm-year observations between 1980 and 2003. Financial reporting quality has been posited to improve investment efficiency, but to date there has been little empirical evidence to support this claim. Consistent with this claim, the study finds that proxies for financial reporting quality are negatively associated with both firm underinvestment and overinvestment. The relation between financial reporting quality and underinvestment (overinvestment) is mainly driven by the innate (innate and discretionary) component of reporting quality. Further, financial reporting quality is more strongly associated with overinvestment for firms with large cash balances and dispersed ownership, which suggests that financial reporting quality mitigates information asymmetries arising from agency conflicts. However, the study finds mixed evidence for the hypothesis that financial reporting quality is more strongly associated with underinvestment for firms facing financing constraints. Finally, the relation between financial reporting quality and investment efficiency is stronger for firms with low quality information environments.

McNichols & Stubben (2008) examines whether firms manipulating their reported financial results make suboptimal investment decisions. it examines fixed asset investments for a large sample of public companies during the 1978–2002 period and documents that firms that manipulate their earnings—firms investigated by the SEC for accounting irregularities, firms sued by their shareholders for improper accounting, and firms that restated financial statements—over-invest substantially during the misreporting period. Furthermore, following the misreporting period, these firms no longer over-invest, consistent with corrected information leading to more efficient investment levels. We find similar patterns for firms with high discretionary revenues or accruals. findings suggest that earnings management, which is largely viewed as targeting parties external to the firm, can also influence internal decisions.

Biddle et al. (2009) documents a conditional negative (positive) association between financial reporting quality and investment for firms operating in settings more prone to over-investment (under-investment). Firms with higher financial reporting quality also are found to deviate less from predicted investment levels and show less sensitivity to macro-economic conditions. These results suggest that one mechanism linking reporting quality and investment efficiency is a reduction of frictions such as moral hazard and adverse selection that hamper efficient investment.

chen et al. (2011) examines the role of FRQ in private firms from emerging markets, a setting in which extant research suggests that FRQ would be less conducive to the mitigation of investment inefficiencies. Using firm-level data from the World Bank, empirical evidence suggests that FRQ positively affects investment efficiency. further finds that the relation between FRQ and investment efficiency is increasing in bank financing and decreasing in incentives to minimize earnings for tax purposes.

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Gomariz & Ballesta (2014) conducted with a sample of Spanish listed companies during the period 1998–2008, examines the role of financial reporting quality and debt maturity in investment efficiency. The results show that financial reporting quality mitigates the overinvestment problem. Likewise, lower debt maturity can improve investment efficiency, reducing both overinvestment and underinvestment problems.

Mohammadi (2014) shows the impact of financial reporting quality on investment efficiency. The study period is 2006 to 2010. The method of data analyses is correlation and regression. The results show that financial reporting quality and investment efficiency have positive and significant relationship.

Ebrahimi Rad et al. (2016) aims to empirically examine the association between financial information quality and investment efficiency among firms in Malaysia. It is hypothesized that there is a positive association between financial information quality and investment efficiency. Specifically, this study expects that higher financial information quality alleviates over and/or under-investments. This hypothesis is empirically evaluated using a sample of 5,384 observations over ten years among listed firms under the Main Board of Bursa Malaysia. The results provide support that financial information quality is significantly positively related to investment efficiency.

Cherkasova & Rasadi (2017) explores the firm-level relationship between earnings quality and investment efficiency. Higher quality of reported results has the capacity to positively impact the efficiency of company's investment levels by over- and underinvestment reduction. The research is carried out on the sample of 7546 companies from Eastern Europe for the period 2010-2015. The study divides the sample into 2

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fundamentally different economic sectors - industrial and retail - and test the significance of each factor in the main relationship, and also examines the factor of the firm's ownership form by comparing earnings quality with investment efficiency values between public and private companies. main results show that a higher earnings quality mitigates both overinvestment and underinvestment issues. The relationship between earnings quality and underinvestment turns out to be stronger in the industrial sector. As for the comparison of public and private firms, public companies on average demonstrate a higher earnings quality and lower overinvestment issues.

Houcine (2017) examines the impact of financial reporting quality on corporate investment efficiency the sample is based on 25 Tunisian listed companies for the period 1997–2013. The findings confirm that some characteristics of the financial information, namely, reliability and smoothness, appear to increase the investment inefficiency, while others, i.e., conservatism and relevance, seem have no significant effect on investment decisions. The study attributes such results mainly to the contextual specificities of the Tunisian environment, such as, the institutional bodies and settings, the cultural values and some characteristics of the corporate governance system.

Aulia & Siregar (2018) aimed to investigate the effect of financial reporting quality, debt maturity, and CEO career concerns on investment efficiency in Indonesia. This study used a sample of 680 observations from non-financial companies in Indonesia during the period from 2012 to 2015 using panel regression. The results show that financial reporting quality does not affect investment efficiency. This might be because the quality of financial reporting has no effect in the overinvestment scenario. Under this condition, financial reporting quality cannot mitigate the occurrence of

overinvestment due to the high level of agency problems. However, financial reporting quality has a significantly positive effect under condition of underinvestment, which means that financial reporting quality can reduce the occurrence of underinvestment because it can be used to attract external funds so that companies can avoid underinvestment conditions.

Al'Alam & Firmansyah (2019) aimed to examine the effect of financial reporting quality, debt maturity, political connection, and corporate governance on a firm's investment efficiency. The sample includes manufacturing and infrastructure companies listed on the Indonesia Stock Exchange (IDX). The type of data used for this study is secondary data in the form of financial statements and annual reports from 2013 to 2016. The results suggest that financial reporting quality is positively associated with investment efficiency.

Based on information asymmetry models, Zhou & Zhang (2019) formulates hypotheses to investigate whether higher FRQ can improve investment efficiency through lowering over-investment, reducing under-investment, or both in China. In addition, the study is interested in examining whether an improved corporate governance system influences the effect of FRQ on investment efficiency in China. results reveal that FRQ alone does not improve investment efficiency through reducing over-and/or under-investment in China. However, FRQ does improve investment efficiency in the companies which have better corporate governance

Ellili (2022) aimed to examine the impacts of environmental, social and governance (ESG) disclosure and financial reporting quality (FRQ) on investment efficiency, using the United Arab Emirates (UAE) as a sample in 2010–2019. Empirical results show a positive relationship between ESG disclosure, FRQ and investment efficiency, and that this relationship is more

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important in the underinvestment and high FRQ sub-samples.

Houcine et al. (2022) aimed to investigate whether Financial Reporting Quality (FRQ), Corporate Governance and IFRS affect investment efficiency of French listed companies. Based on a sample of 125 French firms between 2008 and 2017, The findings show that FRQ plays a role in reducing overinvestment and does not affect underinvestment, suggesting that in a code-law country, informal and personal relationships tend to replace the role of financial reports in mitigating information asymmetry. The results also reveal that the relationship between FRQ and investment efficiency increases with better corporate governance and with the implementation of IFRS.

Assad et al. (2023) aims to comprehensively examine the relationship between financial reporting quality (FRQ) and investment efficiency (IE). The central thrust of this research endeavor is to empirically analyze the impact of FRQ on diverse facets of investment, including overinvestment, underinvestment and overall IE. Using a sample of 13,902 firm-year observations from publicly listed US companies, this study offers interesting insights into the intricate relationship between FRQ and IE. The results indicate a strong positive relation between the two constructs. In particular, the research reveals a negative link between FRQ and underinvestment, and an inverse relationship between FRQ and overinvestment. These findings suggest that FRQ is one of the key drivers of IE and that by enhancing FRQ, businesses can better optimize their investments.

There are many studies about the relationship between financial reporting quality and investment efficiency, and There is a conflict in the results of this studies:

- 1- (Biddle & Hilary, 2006; Verdi, 2006; McNichols & Stubben, 2008; Biddle et al., 2009; chen et al., 2011; Mohammadi, 2014; Ebrahimi Rad et al., 2016; Hayati & & Rasadi, 2017; Al'Alam & Firmansyah, 2019& Ellili, 2022 & Assad,2023) found that positive relationship between financial reporting quality an investment efficiency.
- **2-** (Aulia & Siregar, 2018) found that negative relationship between financial reporting quality with only under-investment.
- **3-** (Gomariz & Ballesta, 2014; Houcine et al., 2022) found that negative relationship between financial reporting quality and over investment only.
- **4-** (Houcine, 2017) found confirm that some characteristics of the financial information, namely, reliability and smoothness, appear to increase the investment inefficiency, while others, i.e., conservatism and relevance, seem have no significant effect on investment decisions.
- **5-** (Zhou & Zhang, 2019) found that there is no relationship between financial reporting quality and investment efficiency.

5. Hypothesis Development

According to agency theory one mechanism linking financial reporting quality and investment efficiency is a decreasing information asymmetry to reduce of frictions such as moral hazard and adverse selection that hamper efficient investment. As, financial reporting quality reduces the information gap between managers and outside suppliers of capital and, thus, reduces the moral hazard and adverse selection problems, thereby enhancing the investment efficiency.

Positive Accounting Theory (Watts and Zimmerman, 1978) stipulates that financial reporting has two dimensions: market signaling and monitoring managerial behaviors. Through these signaling and stewardship means, a better financial reporting quality would have significant economic consequences in terms of efficient resources allocation, which results in improving firms' investment decision.

The effect of financial reporting quality on investment efficiency, as it enables businesses to optimize their investments by improving their decision-making processes and better risk assessment of associated projects, resulting in more efficient capital allocation. A higher degree of financial reporting quality increases investors' confidence in a company's financial statements, resulting in higher liquidity. So, it can be used to attract external funds so that companies can avoid underinvestment conditions.

due to the inconsistent findings for effect financial reporting quality and investment efficiency; the hypothesis can be formed in the null form as follows:

 H_1 : There is no relationship between financial reporting quality and investment efficiency.

6. Research Methodology

To achieve the objective of the research, which is to measure the relationship between financial reporting quality and investment efficiency. In achieving this, the empirical research will depend on balanced panel data for a sample of (96) companies listed on the Egyptian stock market during the period (2013-2018) with a total of 576 annual views, which were obtained from the published financial reports of these companies.

6.1. The Model:

Thus, the Hypotheses can be tested by regressing the investment efficiency variable in year t on the scale of financial reporting quality (FRQ)

in year t-1. Similar to Biddle, et al. (2009), Chen et al. (2011), Wang, et al. (2015). Accordingly, the study model can be formulated in its simplest form in a linear form as follows:

$$\begin{aligned} & Under \ Inv_{i,t} = \beta_0 + \beta_1 FRQ_{i,t-1} + \beta_2 FSize_{i,t-1} + \beta_3 Growth_{i,t-1} + \beta_4 Lev_{i,t-1} + \beta_5 CFO_{A_{i,t-1}} + \beta_5 BSize_{i,t-1} + \beta_5 Bindp_{i,t-1} + \varepsilon_{i,t} \quad (1) \\ & Over \ Inv_{i,t} = \beta_0 + \beta_1 FRQ_{i,t-1} + \beta_2 FSize_{i,t-1} + \beta_3 Growth_{i,t-1} + \beta_4 Lev_{i,t-1} + \beta_5 CFO_{A_{i,t-1}} + \beta_5 BSize_{i,t-1} + \beta_5 Bindp_{i,t-1} + \varepsilon_{i,t} \quad (2) \end{aligned}$$

Where:

- Under $Inv_{i,t} \rightarrow$ Under-investment (negative over-investment), which is equal to the absolute value of the negative residuals of the investment model in the current period.
- *Over Inv_{i,t}* → Over-investment (positive over-investment), which represents the positive residuals of the investment model in the current period.
- $FRQ_{i,t-1} \rightarrow$ Financial reporting quality, which is the absolute value of the voluntary benefits of the revised Jones model, in the previous period.
- $FSize_{i,t-1}$ → The size of the company and represents the natural logarithm of the company's total assets in the previous period.
- $Growth_{i,t-1} \rightarrow annual$ revenue growth rate in the previous period.
- $Lev_{i,t-1}$ → Leverage in the previous period.
- *CFO*_{$A_{i,t-1}$} → Operating cash flows attributable to total assets in the previous period.
- \circ BSize_{*i*,*t*-1} \rightarrow The size of the board of directors in the previous period.
- $Bindp_{i,t-1}$ → The independence of the board of directors in the previous period.
- $\circ \quad \varepsilon_{i,t} \rightarrow$ the error term as usual.
- $β_0$ → function constant.

 $\circ \ \beta_1, \beta_2, \dots, \beta_5 \to \text{Coefficients of the study model variables.}$

6.1.2. Variable measurement:

Dependent variable: Investment Efficiency

Although firms might deviate their optimal investment ratio due to the defects of market imperfection, the measure of such deviation is conceptually and empirically difficult. In this paper, the researcher postulates that certain firm-specific characteristics are likely to affect the possibility of firms to over- or under-invest. Several studies indicate that a higher cash ratio increases the possibility of managers deciding to make inefficient investments (Jensen, 1986; Opler et al., 1999). By the same token, firms with higher leverage ratio may suffer more severe problems of bankruptcy or debt overhang, forcing them to under-invest (Myers, 1984). Since the cash balance and leverage ratio may affect firm's investment level, the researcher adopts the method used by Biddle et al. (2009) and use these two variables to proxy for over- and under- investment. The researcher first multiplies leverage by -1 so that it resembles cash in that when it increases the tendency is towards overinvestment. The researcher then ranks the firms into deciles by each of these two variables for each year. Because the general leverage level across industries may vary over time, The researcher also considers industry effects across the sample period (Lang et al., 1996) and rank firms within the industry. Next, the researcher also re-scales this to a range of 0 to 1. Based on the average ranked value of cash and leverage, we can obtain a composite score measure which is computed as the average of the ranked values of the two variables. We further define two dummy variables: Overinvest (representing firms that are more prone to over-invest) when the composite score is near 1 (the top 25% of the sample firm) and

Underinvest (representing firms that are more prone to under-invest) when the composite score is near 0 (the lowest 25% of the sample firm).

Both underinvestment and overinvestment are inefficiency investment.

Investment_i, $t = \beta_0 + \beta_1 Growth_i$, $t-1 + \beta_2 Lev_i$, $t-1 + \beta_3 Cash_{i,t-1} + \beta_4 Size_{i,t-1} + \beta_5 Investment_{i,t-1} + \varepsilon_{i,t}$

Where:

- \circ **Investment**_{i, t} is the sum of capital expenditures, R&D expenditures, and acquisitions minus sales of property, plant, and equipment scaled by lagged total asset for firm i at the end of year t-1.
- $\circ \beta_0$: Constant.
- $\circ \beta_1: \beta_5:$ independent variable coefficient.
- \circ **Growth**_{i' t-1}: annual revenue growth rate for firm i at the end of year t-1.
- Leverage_{i, t-1}: is financial leverage refers to the extent to which firms rely on debt capital, which calculated as the ratio of the percentage change net income (NI) to percentage change in earnings before interest and taxes (EBIT) of firm i at the end of year t-1.
- \circ Cash_{i, t-1}: is the ratio of cash to total asset of firm i at the end of year t-1.
- Size_{i, t-1}: is the log of total assets of firm i at the end of year t-1.
- $\circ \mathbf{E_{it}}$: error (residual).

The Independent Variable:

(1) Financial Reporting Quality

Where discretionary accruals are more appropriate to obtain evidence of earnings management, earnings management practices arise primarily from the application of the accrual basis. Also, because it reflects the accounting estimates and choices of management (Dechow et al., 1995), and here a distinction must be made between two types of accruals; They are non-voluntary (compulsory) accruals, which arise from fixed contracts and normal changes in accounting policies, and voluntary accruals, which arise from exploiting the flexibility of standards and the accrual basis.

Here, the size of the voluntary benefits will be estimated by relying on the modified (Jones, 1991) model, as it is one of the most powerful and widely used total benefits models by previous studies that dealt with the phenomenon of earnings management (Mohamed, 2012). The voluntary benefits are measured as follows:

A) Total Accruals:

It is calculated by the following equation (1);

$$TA_{i,t} = NIBE_{i,t} - CFO_{i,t} \quad (1)$$

Where:

- $TA_{i,t} \rightarrow$ total accruals of the company (i) in period (t).
- *NIBE_{i,t}* → net income before unusual items of company (i) in period (t).
- $CFO_{i,t} \rightarrow$ net cash flows from the company's operations (i) in period (t)

that is; Total Accruals = (Net Income Before "Extraordinary" Items - Net Operating Cash Flows).

B) Using the modified form (Jones, 1991):

In this step, the following regression model (2) proposed by Jones is estimated, using the appropriate standard method for estimating the parameters of the model for each sector separately, through which the nondiscretionary benefits will be calculated:

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \alpha 1 \left[\frac{1}{Assets_{i,t-1}} \right] + \alpha 2 \left[\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{Assets_{i,t-1}} \right] + \alpha 3 \left[\frac{PPE_{i,t}}{Assets_{i,t-1}} \right] + \varepsilon_{i,t}$$
(2)

Where:

- $TA_{i,t} \rightarrow$ Total accruals of the company (i) in period (t).
- $\Delta REV_{i,t} \rightarrow$ Change in revenue for company (i) in period (t).
- $\Delta REC_{i,t} \rightarrow$ Change in debtors of company (i) in period (t).
- *PPE_{i,t}* → Total equipment, equipment and supplies of the company
 (i) in period (t).
- $Assets_{i,t-1} \rightarrow \text{Total assets of the company (i) in the period (t-1).}$
- ε_{i,t} → Residuals of the regression model, expressing the voluntary benefits of company (i) in period (t).

To note; In the regression model (2), all its variables were divided by the total assets of the company in the previous period in order to cancel the effect of differences between the sizes of companies.

C) Measurement of Non-Discretionary Accruals:

In this step, the non-discretionary accruals (NDA) are calculated for each of the sample companies, using the coefficients of the previous regression model as in the following equation (3):

$$NDA_{t,i} = \hat{a}_1 \frac{1}{Assets_{i,t-1}} + \hat{a}_2 \frac{\Delta Rev_{i,t} - \Delta REC_{i,t}}{Assets_{i,t-1}} + \hat{a}_3 \frac{PPE_{i,t}}{Assets_{i,t-1}}$$
(3)

Where:

- $NDA_{i,t} \rightarrow Non-discretionary$ benefits of company (i) in period (t).
- $\hat{a}_1, \hat{a}_2, \hat{a}_3 \rightarrow \text{Regression coefficients for the three variables in model (2)}$

D) Discretionary Accruals:

In the final step, the Discretionary Benefits (DA) for each company will be calculated by calculating the difference between the total and nondiscretionary benefits.

$$DA_{i,t} = \frac{TA_{i,t}}{Assets_{i,t-1}} - NDA_{i,t} \quad (4)$$

Where:

- $DA_{i,t} \rightarrow$ voluntary benefits of company (i) in period (t).
- $TA_{i,t} \rightarrow$ total accruals of the company (i) in period (t).
- $Assets_{i,t-1} \rightarrow \text{total assets of the company (i) in the period (t-1).}$
- $NDA_{i,t} \rightarrow$ Non-discretionary benefits of company (i) in period (t).

Here, the absolute value of the discretionary benefit can be used as a measure of earnings management.

Symbols	Variables	Measurements		
Growth	Growth rate	is the annual revenue growth rate for firm i at the end of year.		
SIZE	Company Size	logarithm of the book value of total assets		
Lev	ratio leverage	Total liabilities divided by total assets		
CFO	cash flow from operation	operations cash flow scaled by total assets		

> The Control variables:

7.Empirical Results

7.1. Descriptive Analysis:

To know the nature and characteristics of the study models variables; Here, appropriate descriptive statistics will be used, such as mean and median, which is one of the measures of central tendency, standard deviation, which is one of the measures of dispersion, minimum and maximum, in addition to the test of the normal distribution. As can be seen from the following table (1):

 Table (1): Descriptive statistics for variables, 2013 - 2018:

	Obs.	Mean	Median	Std. Dev.	Min	Max	Normality test
Dependent Variable:							
Investment	576	0.0524	0.0238	0.115	6.9e-18	1.9987	[635348]***
Under_Inv	386	0.0422	0.0234	0.046	6.9e-18	0.2785	[733.342]***
Over_Inv	190	0.0732	0.0247	0.188	3.5e-17	1.9987	[34474.5]***
Independent							
Variable:							

/FRQ/	576	0.1124	0.0630	0.149	9.2e-05	1.5429	[13965.6]***
Control Variables:							
FSize	576	20.064	20.033	1.466	15.279	24.723	[29.8958]***
Growth	576	0.1140	0.1022	0.442	-1	3.7698	[5908.18]***
Lev	576	0.4548	0.3852	0.409	0.0049	5.8560	[128054]***
CFO_A	576	0.0440	0.0374	0.141	-1.0086	0.5573	[4098.92]***
BSize	576	7.9409	8	2.566	4	17	[74.0387]***
Bindp	576	0.7043	0.7778	0.195	0	1	[114.649]***

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

It is clear from the previous brief statistical summary of all the included variables, the following.

For the dependent variable (investment efficiency):

○ It becomes clear that the minimum and maximum investment variable for the sample of companies lies in a very wide range between companies that did not make any additional investments in some years and companies that made large investments. This large disparity may seem natural as a result of differences in the circumstances faced by each company, its goals and future plans, and other organizational variables. This variance confirms the test of the normal distribution, which was statistically significant for the investment variables, thus rejecting the null hypothesis and accepting the alternative hypothesis that the variables of investment for companies do not follow the normal distribution, meaning that their values fall within a wide range and do not revolve around their average.

Here, due to the large size of the standard deviation, and the lack of a normal distribution of investment variables, this makes the arithmetic mean statistic invalid here, that is, it is not meaningful or useful, given that the arithmetic mean is affected by abnormal or extreme values. Accordingly, it will be relied on here on the mediator's statistic, since it

is not affected by anomalies.¹ Accordingly, it becomes clear that the median of the investment variable as a whole in the sample of companies is equal to 0.0234, which is the same as the median of the absolute value of the investment that is less than necessary, while the mediator of the investment that is larger than necessary was slightly higher to equal 0.0251.

• We also note from the number of views; The investment that is less than necessary was achieved in 448 views, which is about 67% of the total sample size, in contrast, we find that the investment that is too large was achieved in 221 views, or about 33% of the sample size. That is, the proportion of the investment that is less than necessary exceeds twice the proportion of the investment that is too large. This explains the dominance of pessimistic or conservative tendencies among companies, and their unwillingness to risk major economic expansions in light of the current economic horizon of the state.

For the control variables:

It becomes clear that the sizes of companies, the sizes of the board of directors, and the independence of the board of directors follow a normal distribution, meaning that all companies are relatively homogeneous in their sizes, the sizes of their boards of directors, and the percentage of independence of their boards of directors. Accordingly, it is clear that the size of the sample companies ranges between (15.22 -

¹ Note from the statistical description table (1) that the variables that follow a normal distribution, that is, whose actual values revolve around their mean with no outliers, we find that the value of the mean and the median are very close to each other. On the other hand, we find that the variables that do not follow the statistical distribution, that is, whose values lie in a wide range and do not revolve around their mean, we find that there are large differences between the value of the mean and the median.

24.72) with a general average of (20.02). Which includes that the study sample is rich in its control over the differences between large and small companies. The size of the board of directors' ranges between (4 - 17) with an overall average of 7.9 members. The average independence of the board is equal to 0.705, meaning that 70.5% of the companies' boards of directors are independent.

As for the rest of the controlling variables, they did not follow the normal distribution, as we note that the median of the revenue growth rate is 0.0898, the median of the financial leverage is 0.3776, and the median of the ratio of operating cash flows to total assets is 0.0383.

7.1.2. Correlation Matrix:

Moving on to Tables (2), (3), it shows the zero-degree correlation analysis between the variables of the two study models. This is done using bivariate correlations. These bivariate correlations allow us to first verify the putative relationships. The correlation coefficient ranges between zero and one, i.e. (0 - 100%), where the value of the coefficient reflects the strength of the correlation relationship, while the signal reflects the direction of the correlation, whether it is direct or inverse. According to statistical standards, the correlations less than 50% represent weak ones. While the correlations that range between (50% - 70%) represent medium strong correlations, any correlation that exceeds 70% is considered a strong correlation. Based on these criteria, it can be noted that the correlations between the variables of the two study models are between weak and moderately strong. The results of the two tables can be summarized in clear lines, as follows:

• The correlation of the independent variable with investment efficiency; It is clear from Table (2) that there is a direct and statistically significant correlation at the 5% level between the quality of financial

reports and the under-investment. Whereas, the correlation coefficient was (11.3%), which implies that the increase in profit management (as a proxy for the decrease in the quality of financial reports) is accompanied by making less investments than necessary. Similarly, there was a positive, but not statistically significant, relationship between the quality of financial reports and the investment that was too large (9.1%) as shown from table (3).

- The correlation of the controlling variables with the efficiency of the investment; And here from Table (2), it is clear that the most controlling variables related to underinvestment were the size of the company with a correlation coefficient (9.5%), followed by the revenue growth rate (9.3%), then the size of the board of directors (5.2%), the independence of the board of directors (4.1%).), the ratio of operating cash flows to total assets (3.8%), and finally the financial leverage (2.9%). From Table (3), we find that the most controlling variables related to the investment that is too large was the size of the company (22.9%), then the ratio of operating cash flows to total assets (14.1%), revenue growth rate (8.8%), and financial leverage (6.4%). , the size of the board of directors (4.5%), and finally the independence of the board of directors (4.5%), and finally the independence of the board of directors (2.3%).
- Correlation of independent and control variables with each other; Finally, as for the correlation coefficients between the independent variables with each other, they ranged between weak and moderately strong. According to Anderson (1990), correlation coefficients greater than 0.7 may indicate the possibility of the model being exposed to a dichotomy problem. Accordingly, no possibility of Multicollinearity problem was found among the variables of the study model. With the exception of a single strong correlation between free cash flows and

operating cash flows to total assets in the case of underinvestment, which amounts to (96.7%). Which requires caution when actually applying to make sure that this problem is neutralized and that the results are not affected by it.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
/Under	(1)	1							
_Inv/	(1)								
	(2)	0.1129	1						
/r ng/	(2)	[2.23] **	1						
FSizo	(3)	0.0948	0.1595	1					
Гыце	(3)	[1.87] *	[3.17] ***	1					
Growth	(4)	0.0934	0.0349	0.0691	1				
Growin	(4)	[1.84] *	[0.69]	[1.36]	1				
Lav	(5)	-0.0293	0.0613	-0.0385	0.0693	1			
Lev	(5)	[-0.58]	[1.20]	[-0.76]	[1.36]	1			
CEO A	(6)	0.0380	-0.5158	0.2111	0.0194	-0.4138	1		
CFO_A	(0)	[0.75]	[-11.8] ***	[4.23] ***	[0.38] ***	[-8.91] ***	1		
DSizo	(7)	0.0521	0.0871	0.4036	-0.0204	-0.0601	0.0689	1	
DSIZE	()	[1.02]	[1.71] *	[8.65] ***	[-0.39]	[-1.18]	[1.35]	1	
Rindn	(8)	0.0406	0.0869	0.1933	-0.0003	-0.1531	-0.0006	0.4634	1
ыпар	sinap (8)	[0.79]	[1.71] *	[3.86] ***	[-0.01]	[-3.04] ***	[-0.01]	[10.2] ***	1

Fable (2): Correlati	on matrix betw	veen variables	through [Under_In	v :
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Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

Table (3): Correlation matrix between variables through Over_

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Over _Inv	(1)	1							
<i> FRQ </i>	(2)	0.0910 [1.25]	1						
FSize	(3)	0.2285 [3.22] ***	0.2244 [3.16] ***	1					
Growt h	(4)	0.0877 [1.21]	0.1569 [2.18] **	0.1166 [1.61]	1				
Lev	(5)	-0.0642 [-0.88]	0.0712 [0.98]	0.2045 [2.86] ***	0.1835 [2.56] **	1			
CFO_ A	(6)	0.1408 [1.95] *	-0.4561 [-7.03] ***	0.1281 [1.77] *	0.0863 [1.19]	-0.2542 [-3.60] ***	1		
BSize	(7)	0.0445 [0.61]	0.2545 [3.61] ***	0.4165 [6.28] ***	0.1125 [1.55]	-0.0939 [-1.29]	0.0812 [1.12]	1	
Bindp	(8)	-0.0233 [-0.45]	0.1479 [2.05] **	-0.0060 [-0.08]	0.0007 [0.00]	-0.1312 [-1.81] *	-0.2848 [-4.07] ***	0.3693 [10.2] ***	1

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

This part aims to clarify the statistical methods used to test the study hypotheses to arrive at accurate statistical results that can be inferred on the true relationship in the study community. To choose the appropriate standard method for estimating the regression of the two study models, five different statistical tests:

Model Estimation

Dependent variable: |Under_Inv|

	Reg (1)							
	Coefficient	Std. Err	t-stat.	Sig.				
FRQ (-1)	-0.045721	0.00876	-5.2203	0.000***				
FSize	0.008948	0.00401	2.2299	0.027**				
Growth	-0.002527	0.00338	-0.7487	0.455				
Lev	-0.026288	0.00882	-2.9809	0.003***				
CFO_A	-0.048105	0.01299	-3.7032	0.000***				
BSize	0.000388	0.00159	0.2448	0.807				
Bindp	-0.025779	0.00989	-2.6057	0.009***				
Constant	-0.109682	0.08212	-1.3357	0.183				
	`Key Reg	ression Statistics						
Obs.			325					
Adjusted R-squared	51.4%							
Durbin-Watson stat.	2.5852							
Fisher test (F-stat)		4.26297 (0.000)***						
Post-hoc Stat Power		88 5%						

Method: 2way Fixed Effects Model with white robust standard error

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

It is clear from the results of the regression table that:

From regression (1), there is a direct negative impact of the quality of financial reports on underinvestment at the 1% level. From the regression coefficient an increase in earnings management (and thus a decrease in the quality of financial reports) by one degree will lead to a decrease in the level of underinvestment by (0.0457) degrees on average. And if the size of the effect is relatively high, whereby an increase by one degree in profit management leads to a decrease in the level of investment that is

less than necessary by (0.0651) degrees on average. This means that high quality financial reporting can reduce ethical risks and negative selection among managers and investors. As a result, high quality financial reporting can reduce underinvestment.

- As for the controlling variables in the regression (1), there is a negative effect of financial leverage, the ratio of operating cash flows to total assets, and the independence of the board of directors on the investment that is less than necessary, in contrast to the presence of a positive effect of the size of the company on the level of investment that is less than necessary. While the size of the board of directors or the growth rate of sales had no effect on the level of investment that is less than necessary.
- o From the general statistics of the two regressions, it becomes clear from the value of the adjusted coefficient of determination (Adjusted R2) that the study model explains 51.4% of the changes that occur in underinvestment, while the rest of the ratio is due to random error because of the presence of other variables It is not controlled within the model. Also came a statistical value (Durbin-Watson) about the value 2. The Fisher test also indicates the rejection of the null hypothesis and acceptance of the alternative hypothesis with the presence of statistical significance for the first study model at the level of significance of 1%. Finally, we notice a rise in the post-regression strength index, which reaches 88.5%.

Dependent variable: Over_Inv

	Reg (2)						
	Coefficient	Std. Err	t-stat.	Sig.			
/FRQ/(-1)	-0.130280	0.04603	-2.8302	0.006***			
<i>FCF</i> (-1)							
FSize	-0.023513	0.01675	-1.4039	0.165			
Growth	-0.009935	0.00830	-1.1965	0.236			
Lev	-0.119939	0.04786	-2.5059	0.015**			
CFO_A	-0.326548	0.07772	-4.2016	0.000***			
BSize	0.010538	0.00190	5.5391	0.000***			
Bindp	0.016767	0.03236	0.5181	0.606			
Constant	0.484524	0.41423	1.1697	0.246			
		Key Re	gression Stati	stics			
Obs.			155				
Adjusted R-squared			96.5%				
Durbin-Watson stat.			2.5852				
Fisher test (F-stat)			49.9077 (0.000))***			
Post-hoc Stat. Power			88.5%				

Method: *2way Fixed Effects Model with white robust standard error*

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

It is clear from the results of the regression table that:

• From regression (2), it is clear that there is a direct negative impact of the quality of financial reports on the investment that is too large at the 1% level. From the regression coefficient, it is clear that increasing profits management (and thus decreasing the quality of financial reports) by one degree will lead to a decrease in the level of investment that is too large by (0.1303) degrees on average. And if the size of the effect is relatively high, whereby an increase by one degree in profit management leads to a decrease in the level of large by (0.1815) degrees on average. This means that high quality financial reporting can reduce ethical risks and negative selection among managers and investors. As a result, high quality financial reporting can reduce overinvestment.

- As for the controlling variables in the regression (2), it is clear that there is a negative effect of financial leverage, and the ratio of operating cash flows to total assets on the investment that is too large, in contrast to the presence of a positive effect of the size of the board on the level of investment that is less than necessary. While the company's size, sales growth rate, or the independence of the board of directors had no impact on the level of investment that was too large.
- From the general statistics of the regression, it becomes clear from the value of the adjusted coefficient of determination (Adjusted R2) that the study model explains 96.5% of the changes that occur in the investment that is too large, while the rest of the percentage is due to random error due to the presence of other variables It is not controlled within the model. Also came a statistical value (Durbin-Watson) about the value 2. The Fisher test also indicates the rejection of the null hypothesis and acceptance of the alternative hypothesis with the presence of statistical significance for the first study model as a whole at the level of significance of 1%. Finally, we notice a rise in the post-regression strength index, which reaches 88.5%.

Thus, we conclude from the following statistical significance results.

 Financial reporting is negatively associated with underinvestment and overinvestment, which means that high quality financial reporting can reduce moral risk and negative selection among managers and investors. As a result, high financial reporting quality can reduce underinvestment and overinvestment resulting in higher investment efficiency which strongly supports hypothesis H1.

8. Conclusions

The current research aimed to measure the impact of financial reporting quality and investment efficiency. Therefore, balanced longitudinal data was relied on for a sample of (96) companies listed on the Egyptian stock market during the period (2013-2018) with a total of 576 annual observations, which were obtained from the published financial reports of these companies. By using the two-way fixed effects method, the study concluded that there is a direct negative effect of the quality of financial reporting on investment that is less than necessary. It can reduce moral hazard and adverse selection between managers and investors. As a result, high-quality financial reporting can reduce investment shortfalls.

The researcher also found a direct negative effect of the quality of financial reports on investment that is too big, meaning that an increase in earnings management (and thus a decrease in the quality of financial reports) will lead to a decrease in the level of investment that is too big. This means that high-quality financial reporting can reduce moral hazard and adverse selection between managers and investors. As a result, high-quality financial reporting can reduce overinvestment. Finally, there is a medium practical indication in the Egyptian accounting environment for the financial reporting quality on investment efficiency (underinvestment and overinvestment).

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العلاقة بين جودة التقارير المالية وكفاءة الاستثمار في الشركات المقيدة بالبورصة المصرية: دراسة تطبيقية

ملخص:

تهدف هذه الدراسة إلى قياس أثر جودة التقارير المالية على كفاءة الاستثمار، تم الاعتماد على عينة مكونة من 96 شركة مدرجة بالبورصة المصرية خلال الفترة من (2013-2018) باستخدام أسلوب الآثار الثابتة ذات الاتجاهين، خلصت الدراسة إلى أن التقارير المالية عالية الجودة يمكن أن تقلل من المخاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية المحاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية الجودة يمكن أن تقلل من المخاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية المحاطر الأخلاقية من أن يقلل من المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية المحاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية المحاطر الأخلاقية من من المالية عالية المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية المحاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية والمحاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن المالية على مان المحاطر الأخلاقية والاختيارات السلبية بين المديرين والمستثمرين. ونتيجة لذلك، فإن التقارير عالية والمحودة يمكن أن تقلل من نقص الاستثمار أو الإفراط في الاستثمار. وأخيراً توصلت الدراسة إلى وجود مؤشر عملي متوسط في البيئة المحاسبية المصرية لجودة التقارير المالية حول كفاءة الاستثمار (قلة الاستثمار وفرط الاستثمار).

الكلمات المفتاحية: جودة التقارير المالية، كفاءة الاستثمار، قلة الاستثمار، الإفراط في الاستثمار.